United States Environmental Protection Agency
Criminal Investigation Division
Investigative Activity Report

Case Number:
1000-0494

Case Title:
Cooke Aquaculture Fish Farm Release

Reporting Office:
Seattle, WA, Area Office

Subject of Report:
2018-01-30 Interview of [redacted]

Activity Date:
January 30, 2018

Reporting Official and Date:
[redacted]
Agent
02-FEB-2018, Signed by: [redacted]

Approving Official and Date:
[redacted]
02-FEB-2018, Approved by: [redacted]

SYNOPSIS

On January 30, 2018, SA [redacted] interviewed [redacted] regarding the recent release of Atlantic Salmon into Puget Sound by Cooke Aquaculture in August of 2017.

DETAILS

On January 30, 2018, I conducted a telephone interview of [redacted] regarding the recent release of Atlantic Salmon into Puget Sound by Cooke Aquaculture in August of 2017. After being notified of the identity of the interviewing agent and the nature of the interview, [redacted] in substance, provided the following information:

Background:

[redacted]

Cooke Aquaculture Failure:

Open net pen farms, such as Cooke Aquaculture's net pen #2, which failed in August of 2017, was a giant rectangular fish pen which keeps fish inside and relies on the flow of ocean water to pass through the pen. Because there is a massive demand for oxygen in the net pen area, the net pen relies on this ocean water to pass through the pen to remove carbon dioxide and biological waste created by the fish contained within the net pen.

[redacted] believes that one of the major causes of the net pen failure in August of 2017, was due to the negligence of not properly maintaining the net pen's cleanliness. In [redacted] opinion, maintaining the cleanliness of the net pen is one of the most important requirements for net pen's structural integrity. In the waters of the Pacific Northwest (PNW) there are many organisms which will be attracted to these net pens and attach themselves to the pen as part of their feeding process. The buildup of organisms on this net pen's nets made a massive amount of drag in the water, much like a giant sail underwater.

No net pen systems are completely sealed and escape proof. There are two types of escape events; catastrophic and leakage. Catastrophic releases, such as the Cooke Aquaculture release in August of 2017, are occasional and damaging. Leakage events where a small number of non-native species are released over time can be just as damaging. These small leaks can be caused by predators and human mistakes, but

are not always quickly realized. Small holes in net pens can release small amounts of non-native species over a long period and are very difficult to quantify because they are not easily observable.

There are several direct impacts the release of non-native Atlantic Salmon can have on native PNW Salmon. The PNW salmon are already in a fragile ecological situation and many them have been listed as threatened or endangered under the Endangered Species Act. Any types of changes to the ecosystems of PNW salmon can have devastating impacts for their long-term survival.

Colonization:

In [redacted] opinion, the number one threat to PNW native salmon would be the "colonization" of Atlantic Salmon into the PNW native salmon's natural breeding grounds. This is the case of Atlantic Salmon surviving the escape and following their natural instincts to find streams and rivers to spawn in. These Atlantic Salmon can move into the rivers and streams and with natural selection working, these Atlantic Salmon can reproduce inside of PNW salmon habitat.

The Atlantic Salmon which escaped from the Cooke Aquaculture net pen have been discovered up and down the coast of Washington State, Canada and he believes some of them are even going as far north as Alaska to find rivers and streams in which to spawn.

[redacted] acknowledges, most of the Atlantic Salmon that escaped from Cooke's net pen would not survive, but it would be considered catastrophic if these fish were to gain a foothold in the PNW. [redacted] would consider it a low proximity, but not at zero.

Transfer of Pathogens to native salmon fish stock:

The rearing of net pen fish, in this example Atlantic Salmon, tend to produce fish which test positive for a wide range of pathogens which could be deadly to the native PNW salmon. PNW salmon have been raised in their native habitat and most that obtain disease naturally die out without a lot of transfer due to the distance between fish. The August 2017 release of Atlantic Salmon occurred while native PNW salmon were inside of their breeding season, meaning they were joined in tight groups while navigating back to their native spawning grounds. With the addition of Atlantic Salmon into the native spawning grounds, the potential for pathogens jumping from the non-native species onto native species is greatly increased. [redacted] would liken this to a person's child going to a daycare in which other children have the flu and are highly contagious. This works as a sort of incubator for disease transfer and the same happens inside of the fish community. [redacted] considers this escape to be a point source for the potential transfer of disease to native fish populations. [redacted] considers the threat of pathogens to be only second to colonization.

Interbreeding:

The aquaculture industry has done an excellent job of lobbying lawmakers to prevent any serious research to be completed on inter-species breeding due to aquaculture escapes. Aquaculture has been on-going for approximately thirty years in this area, yet the aquaculture industry has strongly resisted answering the question of whether this could happen. Currently, there is only anecdotal information regarding the interbreeding between Atlantic Salmon and other PNW species, but nothing has been scientifically reviewed and proven. The anecdotal information related to interbreeding shows that PNW Steelhead Trout

are the most likely to reproduce with Atlantic Salmon. The experiments which have been completed are uncontrolled and not scientifically valid, but have been completed.

Genetic Manipulation:

Even if the local aquaculture release would have been a release of, as an example Chinook Salmon, the effects on the local, native PNW salmon could have devastating as they would have the same issues of introducing disease. [redacted] would classify this as genetically risky to native populations of PNW salmon.

As a new species moves into a spawning area and competes for resources, the new species can have genetic issues that are then transferred to the native species, possibly permanently damaging the native stock. As an example, if a farm raised male Chinook Salmon was released and had genetically modified sex organs it could damage the native species as a native female Chinook Salmon would not know the difference and breed with this fish. This could cause the native salmon eggs to not live to maturity or not survive impregnation. The populations of PNW salmon are so fragile that the loss of a single breeding PNW salmon female can have detrimental effects on the population.

Competition for Food and Spawning Areas:

The release of the Atlantic Salmon in August of 2017 will cause a competition for resources such as space and food for native PNW salmon. This effect is directly proportional to the volume of the escapes. A large escape of Atlantic Salmon can cause shortages in already dwindling food sources for native PNW salmon.

It also appears that the Atlantic Salmon are late season spawners which can cause significant damage to native PNW salmon. Native PNW salmon were in the middle of returning to their native habitat breeding grounds and were picking out areas to spawn and create their nests. When Atlantic Salmon come later in the season to find a spot in which to spawn, they can pick out similar or the same spots that native PNW salmon have already made nests in and then release the immature native PNW salmon eggs into the ecosystem and eventually death.

Final Thoughts:

As an example, [redacted] would relate the importance of this issue to the massive amount of money that the United States is currently spending to remove the invasive Asian Carp from the Mississippi River. Asian Carp as pushing out native fish due to competition for food and space.

If this were the 1970's and 1980's [redacted] believes that this release would have been considered a very minor threat to the native PNW salmon. However, due to the loss of habitat, dwindling populations and lack of conservation efforts, this amount of Atlantic Salmon could have a devastating effect on the PNW salmon. The numbers of Atlantic Salmon released in August of 2017 may be a small number, but with the limited amounts of native populations even the smallest amount of change in the biological order can be disproportionally harmful.